

REMARKS

Claims 1-16 are all the claims pending in the application. The Examiner rejects claims 1-2, 5-6, 8-10, 13 and 15-16 under 35 U.S.C. §102(b) as being anticipated by Korth (US 4,866,694), and claims 3-4, 7, 11-12, and 14 under 35 U.S.C. §103(a) as being unpatentable over Korth in view of Ueyanagi (US 6,700,856).

§ 102(b) Rejection

Claims 1-2, 5-6, 8-10, 13 and 15-16 have been rejected under 35 U.S.C. 102(b) as being anticipated by Korth.

A proper rejection for anticipation under § 102 requires complete identity of invention. The claimed invention, including each element thereof as recited in the claims, must be disclosed or embodied, either expressly or inherently, in a single reference. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991); Standard Havens Prods., Inc. v. Gencor Indus., Inc., 953 F.2d 1360, 1369, 21 U.S.P.Q.2d 1321, 1328 (Fed. Cir. 1991). Applicant respectfully traverses these rejections.

The present invention is an immersion lens comprising a solid ellipsoid segment having a first reflecting surface and a second reflecting surface wherein the second reflecting surface is elliptical. The first reflecting surface reflects light from a "plane of incidence" to the second surface. The "plane of incidence" is formed at "the same position as a point symmetrical to [] a different focal point" and therefore has a point symmetrical to one of the two focal points of the second reflecting surface thereon. Any light incident on the "plane of incidence" would be reflected by the first and the second reflecting surfaces as if the light originated at one of the two focal points. *See*, Application, page 9, lines 20-23. This makes use of an inherent property of an ellipse: light from one of the two focal points of an ellipse will be focused on the other focal point of the ellipse. As shown in Figs. 4A&B, 5, 6, and 7 of the Application, light L is incident on a point symmetrical to one of the two focal points s1, reflected by the first reflecting surface s2 to the elliptical second reflecting surface s3, and is focused on the other focal point P, which is located on the first reflecting surface, s2. Fig. 4A is reproduced below.

FIG. 4A

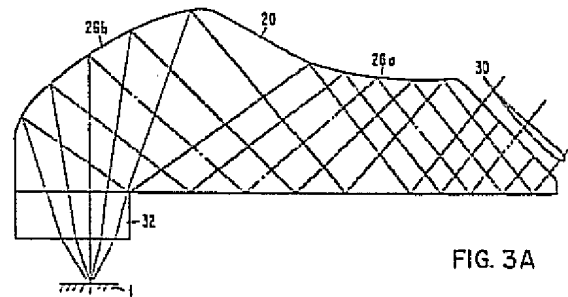
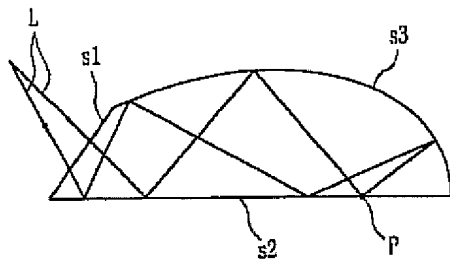


FIG. 3A

Korth is directed to an optical read/write head that is a compact, flat, one-piece arrangement that can be easily fixed to an actuator arm and used with one or several stacked optical disks. The optical beams are guided exclusively in the interior of the head so that no readjustment of the beam path is necessary and the sensitivity to dust reduced. The optical elements to shape and to control the beams are provided at the surface of the optical head and can be manufactured with known techniques, e.g., photolithographic methods or molding, in batch mode where the individual heads are separated only in the last processing step. The low inertia of an individual head allows rapid displacements, e.g., during track search, and the low manufacturing cost permits the use of such high quality heads even in entertainment devices such as video disks.

The most important aspect of Korth's optical system is that the optical elements may be formed as a separate part and affixed to a substrate, wherein the optical elements include two aspherical reflectors (Fig. 3a, 26a and 26b) to provide an aberration free aplanic imaging element for optimal transmission between a laser light source and a photo detector array. One embodiment is shown in Fig. 3a. A simpler optical system uses an ellipsoid for surface 26b and a plane mirror for surface 26a. Figure Fig. 3a is reproduced above for easy comparison with the present invention.

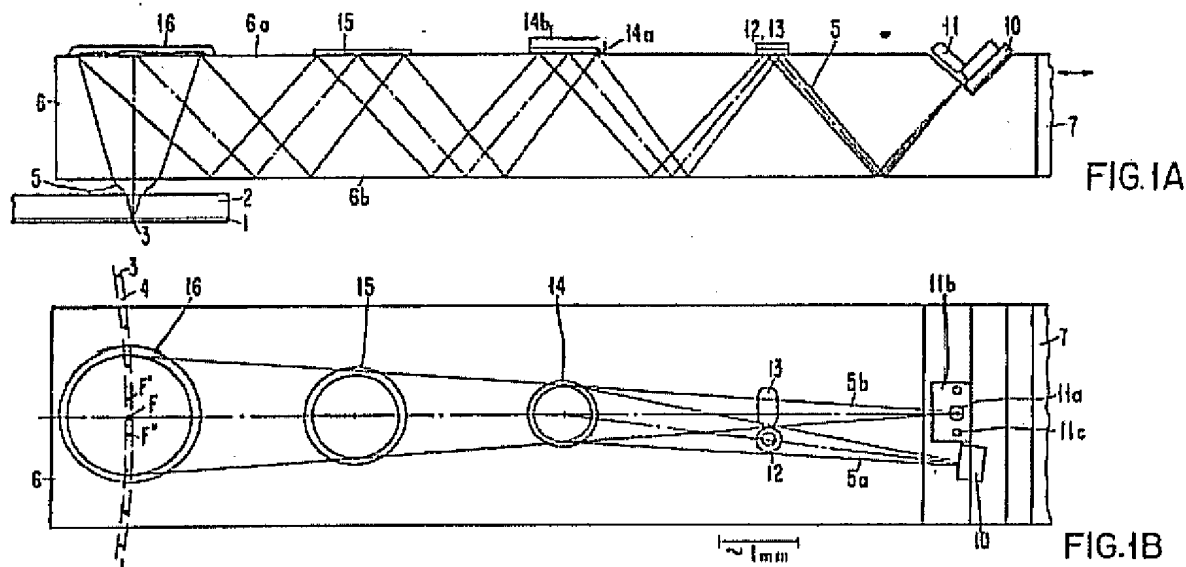
Claims 1 and 2

Applicant amends claim 1 with the limitation of claim 2, and cancels claim 2. Amended claim 1 now includes the limitation that one of the two foci of the ellipsoid is on the first reflecting surface. The limitation is clearly shown in Fig. 4A (above) wherein the focus point P is located on surface s2. In contrast, Korth locates the corresponding focus point on surface 1 (see Fig. 3a above), and surface 1 is located spaced apart from and below the first reflecting surface. Further, Korth describes the entry beam 30 as a “telecentric beam.” According to Edmunds Optics¹, a supplier of optic lenses, “[t]elecentricity is a special property of certain multi-element lens designs in which the chief rays for all points across the object or image are collimated. For example, telecentricity occurs when the chief rays are parallel to the optical axis, in object and/or image space. Another way of describing telecentricity is to state that the entrance pupil and/or exit pupil of the system is located at infinity.” Korth’s use of a telecentric entrance beam implies that there is no second focus point of the ellipsoid, and therefore, the neither focus point can be located on the first reflecting surface.

The Examiner rejected claim 2 by citing element F’ of Fig. 1B and stating the focal point is formed on the first reflection side. Applicant respectfully traverses this rejection for the following two reasons. First, Fig. 1B shows an embodiment wherein the read/write heads is formed from a “slab-like transparent substrate with beam guidance elements applied to the plane top” (*see*, col. 2:65-66) and wherein the optical element focusing the beam is “zone plate” (*see*, col. 3:37), not an ellipsoid element having two foci. Therefore, this embodiment does not teach all the elements of claims 1 and 2.

Second, Fig. 1B is a plane view of the embodiment, and Fig. 1A is a side view of the same embodiment. Fig. 1B clearly shows that the beam is focused on element 3, which is located spaced apart from and below the first reflecting surface. For this reason as well, Figs. 1A and 1B do not teach or reasonably suggest the limitation of “wherein one of two focal points of ellipsoidal side is positioned on the first reflection side.” Figs. 1A and 1B are reproduced below to show applicant’s assertions..

¹ <http://www.edmundoptics.com/techsupport/displayarticle.cfm?articleid=261&search=1/>



Because Korth does not teach or reasonably suggest that either focus point for the ellipsoid is located on the first reflecting surface, Korth does not teach all the limitations of claim 1 as amended, and the claim 1 is allowable over Korth. Applicant respectfully requests reconsideration and withdrawal of the rejections.

Claim 10

Claim 10 includes the limitation that one of two focal points is positioned on the first reflecting side, a limitation not taught or reasonable suggested by Korth. The Examiner rejected claim 10 citing that Fig. 2 shows that one of two focal points of an ellipsoidal side is positioned on the first reflection side. Applicant respectfully disagrees, asserting that Fig. 2 shows just the opposite of what is asserted by the Examiner; namely that the focus of the ellipsoid element is **not located on the first reflecting side**, but is in fact located spaced apart from and below the first reflecting surface. The applicant's assertion is clearly shown in Fig. 2, reproduced below.

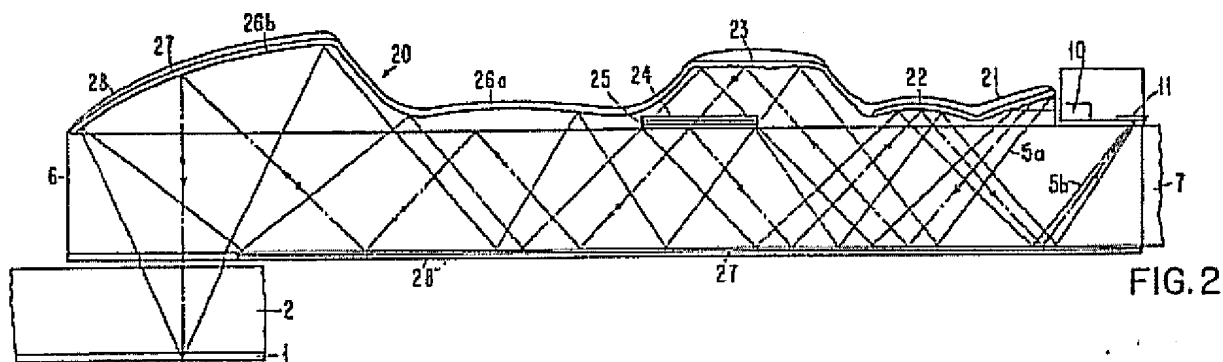


FIG. 2

For the reasons presented above, applicant respectfully requests reconsideration and withdrawal of the rejection.

§ 103(a) Rejection

Claims 3-4, 7, 11-12, and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Korth in view Ueyanagi. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See*, MPEP 2143.

Ueyanagi is directed to an optical head for recording and reading optical data such as may be found on an optical storage disk. As part of the optical head, Ueyanagi discloses a “transparent condensing medium”, wherein the condensing medium is a portion of a sphere (Fig. 1A, Fig. 3A, Fig. 6, and Fig. 9A), flat (Fig. 7) or parabola (Fig. 7A and Fig. 10). In contrast, the present application discloses a solid immersion lens having an ellipsoid shape. A feature of an ellipsoid immersion lens is that light passing through one of the two focal points will be reflected to the other focal point. Ueyanagi discloses only parabolic or spherical lens, and therefore each of Ueyanagi’s lenses have but a single focal point. This feature is evident when examining Figs. 9A and 10A, in which incident light is directed into a lens and the light is focused to a particular point.

Neither Korth nor Ueyanagi teach a focus point for the ellipsoid is located on the first reflecting surface as required by claims 1 (amended) and 10. Therefore, Korth and Ueyanagi fail to teach all the limitations of claims 1 and 10. Korth and Ueyanagi, alone or in combination, fail to teach a lens system comprising a plane of incidence, a first reflection side having a focus of an ellipsoid, and a second reflection side wherein the second reflection side being formed to be an ellipsoid as required by claims 1 and 10, claims 3-4, 7, 11-12, and 14 being dependent from either claim 1 or 10. For at this this reason, applicant asserts that a *prima facie* case for obviousness has not been made and claims 3-4, 7, 11-12, and 14 are allowable. Applicant respectfully requests reconsideration in view of the above arguments, and early allowance of the independent claims.

Dependent Claims

Claims 2-9 and 11-16

Claims 2-9 and 11-16 are dependent from allowable independent claims 1 or 10 respectively, and for at least this reason are also allowable. Applicant respectfully request reconsideration and withdrawal of the rejections.

CONCLUSION

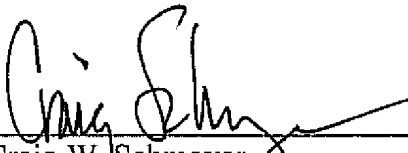
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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